

What is claimed is:

1. A micro pump comprising:

a first flow pass which changes flow pass resistance in accordance with a difference of a pressure between bilateral ends of a flow pass,

a second flow pass wherein the percentage change in the flow pass resistance in accordance with difference of a pressure between bilateral ends of a flow pass is smaller than that of the first flow pass;

a pressure chamber connected to the first flow pass and the second flow pass; and

an actuator for changing the pressure force within the pressure chamber.

2. A micro pump according to claim 1,

wherein the actuator changes the volume of the pressure chamber.

3. A micro pump according to claim 1,

wherein the first flow pass and the second flow pass of the micro pump respectively have uniform cross sectional configurations taken in a plane that is orthogonal to the flow direction,

wherein the percentage of the cross sectional area relative to the flow pass length of the first flow pass is greater than the percentage of the cross sectional

area relative to the flow pass length of the second flow pass.

4. A micro pump according to claim 1,

wherein the first flow pass has the cross sectional configuration taken in a plane that is orthogonal to the flow direction, said cross sectional configuration changes rapidly according to the flow pass.

5. A micro pump according to claim 1,

wherein the first flow pass has a shape in which the center line of flow pass is not straight.

6. A micro pump according to claim 1,

wherein the first flow pass has a shape having an obstruction in the flow pass.

7. A micro pump according to claim 1,

wherein the first flow pass and the second flow pass respectively have shapes of taper,

wherein aspect ratios of said taper are respectively different.

8. A micro pump according to claim 1,

wherein the actuator is a piezoelectric element.

9. A micro pump according to claim 1 further comprising:

driver for driving the actuator to repeatedly change the volume of the pressure chamber between first volume and second volume at specific intervals,

wherein the repetition is such that the time when increasing the volume of the pressure chamber and the time when decreasing the volume of the pressure chamber are different.

10. A micro pump according to claim 9,

wherein wave form of the driving has a period which a voltage does not change between the time when increasing a voltage and the time when decreasing a voltage.

11. A micro pump according to claim 9,

wherein the driver drives a first repetition or a second repetition wherein the times for increasing the volume of the pressure chamber differ between the first repetition and the second repetition for the purpose of changing direction of transport of the fluid.

12. A micro pump according to claim 9,

wherein the actuator is a piezoelectric element.

13. A micro pump according to claim 1 further comprising:

driver for driving the actuator to repeatedly change the volume of the pressure chamber between first volume and second volume at specific intervals,

wherein the first flow pass has a flow pass resistance in a first direction which is greater than the

flow pass resistance in a second direction opposite to the first direction,

wherein driver drives a first repetition that the time of increasing the volume is identical to the time of decreasing the volume or a second repetition that the time of increasing the volume is different from the time of decreasing the volume.

14. A micro pump according to claim 13,

wherein the actuator is a piezoelectric element.